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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/779,426	02/08/2001	Daniel L. Roth	10663-013001	5617

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BOSTON, MA 02110

EXAMINER

VO, HUYEN X

ART UNIT	PAPER NUMBER
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2655

DATE MAILED: 10/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/779,426	Applicant(s) ROTH ET AL.	
	Examiner Huyen Vo	Art Unit 2655	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 8/5/2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 and 17-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 17-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION***Response to Arguments***

1. In response to the office action from 2/5/2004, the applicant has submitted an amendment, filed 8/5/2004, arguing to traverse the art rejection based on the limitation regarding *"unrecognized speech as opposed to non-speech"* (Amendment page 11). The applicant's arguments have been fully considered but they are not persuasive because Curry et al. teach a speech detector (*element 220 in figure 2A*) for determining whether the input signal is speech or non-speech before the recognition step. The speech portion of the signal is then passed to the speech recognizer to determine if the speech portion is recognizable or unrecognizable. The operation of elements 218-234 in figure 2A fully anticipates limitation regarding *"unrecognized speech as opposed to non-speech"*.

2. The applicant also argues *"other references cited in the Office Action also do not disclose or suggest determining if a user's speech is unrecognizable speech, as opposed to non-speech"* (Amendment page 12). However, *"other references"* are not relied upon for the teaching of the above limitation; they are relied upon for the teaching of other limitations (see claim rejections below).

Claim Rejections - 35 USC § 102

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3. The following is a quotation of the appropriate paragraphs of 35

U.S.C. 102 that form the basis for the rejections under this section made in this

Office action:

A person shall be entitled to a patent unless – (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-4, 17-18, 28, 34-35, and 38-39 are rejected under 35

U.S.C. 102(e) as being anticipated by Curry et al. (US Patent No. 6493669).

5. Regarding claims 1 and 17, Curry et al. disclose a feedback process for providing feedback for unrecognized speech comprising:

a speech input process for receiving a speech command as spoken by a user (118 of figure 1); and

an unrecognized speech comparison process, responsive to said speech input process, for comparing said user's speech command to a plurality of recognized speech commands available in a speech library to determine if said user's speech command is unrecognized speech, as opposed to non-speech (col. 3, ln. 31-36).

6. Regarding claim 28, Curry et al. disclose a feedback process for providing feedback for unrecognized speech comprising:

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a speech input process for receiving a speech command as spoken by a user (118 of figure 1);

an unrecognized speech comparison process, responsive to said speech input process, for comparing said user's speech command to a plurality of recognized speech commands available in a speech library to determine if said user's speech command is unrecognized speech, as opposed to non-speech (col. 3, ln. 31-36); and

an unrecognized speech response process, responsive to said unrecognized speech comparison process determining that said user's speech command is unrecognized speech, for generating a generic response which is provided to said user (col. 4, ln. 25-43).

7. Regarding claims 2 and 18, Curry et al. further disclose that the feedback process further comprises an unrecognized speech response process, responsive to said unrecognized speech comparison process determining that said user's speech command is unrecognized speech, for generating a generic response which is provided to said user (col. 4, ln. 25-43).

8. Regarding claim 3, Curry et al. further disclose that a generic response is a visual response (col. 4, ln. 33-38).

9. Regarding claim 4, Curry et al. further disclose that a generic response is an audible response (col. 4, ln. 33-38).

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10. Regarding claim 34, Curry et al. disclose a method comprising:
accepting data representing an audio signal (118 of figure 1);
using speech models to identify the audio signal as belonging to one of three or more categories including: (a) recognized speech, (b) unrecognized speech, and (c) non-speech (*the operation of elements 218-234 in figure 2A*).
11. Regarding claims 35 and 38, Curry et al. further disclose the method of claim 34 further comprising providing feedback according to the category identified for the audio signal (*element 232 in figure 2A*), and wherein the category of recognized speech is identified when the audio signal is unambiguously recognized (*output of element 230 in figure 2A*).
12. Regarding claim 39, Curry et al. further disclose the method of claim 34 wherein identifying the category of the audio signal includes computing a quantity characterizing a match of the audio signal with the speech models and identifying the category according to the computed quantity (*the operation of elements 218-234 in figure 2A*).

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to

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be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claims 5-8 and 19-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Curry et al. (US Patent No. 6493669) in view of Epstein (US Patent No. 5465317).

15. Regarding claims 5 and 19, Curry et al. fail to specifically disclose that the unrecognized speech comparison process includes a user speech modeling process for performing an acoustical analysis of the user's speech command and generating a user speech acoustical model for said user's speech command. However, Epstein teaches a process for performing an acoustical analysis of the user's speech command and generating a user speech acoustical model for the user's speech command (col. 4, ln. 13-19). The advantage of using the teaching of Epstein in Curry et al. is to enhance recognition accuracy by comparing acoustic models.

Since Curry et al. and Epstein are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Curry et al. by incorporating the teaching of Epstein in Curry et al. order to enhance recognition accuracy by comparing acoustic models.

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16. Regarding claims 6 and 20, the modified Curry et al. al. fails to specifically disclose that the unrecognizable speech comparison process further includes a recognized speech modeling process for performing an acoustical analysis of each of the plurality of recognized speech commands and generating a recognized speech acoustical model for each recognized speech command, thus generating a plurality of recognized speech acoustical models.

However, Epstein teaches a process for performing an acoustical analysis of each of the plurality of recognized speech commands and generating a recognized speech acoustical model for each recognized speech command, thus generating a plurality of recognized speech acoustical models (col. 5, ln. 15-22, acoustic speech models have already been generated and pre-stored in acoustic command models store 12 of figure 1). The advantage of using the teaching of Epstein in the modified Curry et al. is to enhance the recognition accuracy.

Since the modified Curry et al. and Epstein are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Curry et al. by incorporating the teaching of Epstein in order to enhance the recognition accuracy.

17. Regarding claims 7 and 21, the modified Curry et al. fails to specifically disclose that the unrecognized speech comparison process further includes an acoustical model comparison process for comparing the user speech acoustical model to each of the recognized speech acoustical models, thus defining a

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plurality of acoustical scores which relate to the user's speech command, one score for each the comparison performed.

However, Epstein teaches a process for comparing the user speech acoustical model to each of the recognized speech acoustical models, thus defining a plurality of acoustical scores which relate to the user's speech command, one score for each the comparison performed (col. 5, ln. 15-23). The advantage of using the teaching of Epstein in the modified Curry et al. is to provide a mean to select the best recognizing candidate.

Since the modified Curry et al. and Epstein are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Curry et al. by incorporating the teaching of Epstein in order to provide a mean to select the best recognizing candidate.

18. Regarding claims 8 and 22, the modified Curry et al. disclose that the unrecognized speech comparison process further includes an unrecognized speech window process for defining an acceptable range of acoustical scores indicative of unrecognized speech, wherein the user's speech command is defined as unrecognized speech if the acoustical score, chosen from a plurality of acoustical scores, which indicates the highest level of acoustical match falls within an acceptable range of acoustical scores.

However, Epstein teaches a process further includes an unrecognized speech window process for defining an acceptable range of acoustical scores

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indicative of unrecognized speech (col. 10, ln. 28-33, initializing the recognition threshold defines the recognition and unrecognition ranges), wherein the user's speech command is defined as unrecognized speech if the acoustical score, chosen from a plurality of acoustical scores, which indicates the highest level of acoustical match falls within an acceptable range of acoustical scores (col. 10, ln. 16-23). The advantage of using the teaching of Epstein in the modified Curry et al. is to define the recognition boundary to allow the system to select or reject the recognition result.

Since the modified Curry et al. and Epstein are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Curry et al. by incorporating the teaching of Epstein in order to define the recognition boundary to allow the system to either select or reject the recognition result.

19. Claims 9 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Curry et al. (US Patent No. 6493669) in view of Epstein (US Patent No. 5465317) and further in view of Gammel et al. (US Patent No. 5832429).

20. Regarding claims 9 and 23, the modified Curry et al. as applied to claim 7 fail to disclose that a plurality of recognized speech commands includes an unrecognized speech entry, the recognized speech modeling process further performs an acoustical analysis on the unrecognized speech entry to generate

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an unrecognized speech acoustical model for the unrecognized speech entry, and the acoustical model comparison process further compares the user speech acoustical model to the unrecognized speech acoustical model to define an unrecognized speech acoustical score; wherein the user's speech command is defined as unrecognized speech if an unrecognized speech acoustical score indicates a higher level of acoustical match than any of the plurality of acoustical scores.

However, Gammel et al. teach a process for performing an acoustical analysis on the unrecognized speech entry to generate an unrecognized speech acoustical model for the unrecognized speech entry (col. 1, ln. 30-31 and col. 5, ln. 55-63), and the acoustical model comparison process further compares the user speech acoustical model to the unrecognized speech acoustical model to define an unrecognized speech acoustical score (col. 1, ln. 30-31), wherein the user's speech command is defined as unrecognized speech if an unrecognized speech acoustical score indicates a higher level of acoustical match than any of the plurality of acoustical scores (col. 8, ln. 13-15). The advantage of using the teaching of Gammel et al. in the modified Curry et al. is to create a garbage model used to explain unrecognized speech.

Since the modified Curry et al. and Gammel et al. are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Curry et al. by incorporating the teaching of Gammel et al. in order to create a garbage model used to explain unrecognized speech.

21. Claims 24-27 and 36-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Curry et al. (US Patent No. 6493669).

22. Regarding claim 24, Curry et al. fail to specifically disclose computer program product residing on a computer readable medium having a plurality of instructions stored thereon which, when executed by the processor, cause that processor to perform the method disclosed claim 10. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the feedback process of claim 10 in software to perform feedback for unrecognized speech. The benefit of doing this is to let the user know that the input speech command is unrecognized so that the user inputs a different command.

23. Regarding claims 25, 26, and 27, Curry et al. fail to specifically disclose the computer readable medium is a random access memory (RAM), read only memory (ROM), a hard disk drive, respectively. However, it would have been obvious to one of ordinary skill in the art that RAM, ROM, and hard disk drive are storage media of a computer. The advantage of this is to provide a convenient way to maintain and update the system.

24. Regarding claims 36-37, Curry et al. further disclose a speech detector for determining if the input signal is a speech signal or non-speech signal (*element*

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220 in figure 2A), but fail to specifically disclose that the category of non-speech includes background noise and background speech. However, it is well known to a person of ordinary skill in the art that background noise and background speech are classified non-speech signal. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to consider background speech and background noise non-speech signal in order to detect and screen out these background sound artifacts to enhance speech recognition accuracy.

25. Claims 29-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Curry et al. (US Patent No. 6493669) in view of Franz et al. (US Patent No. 6278968).

26. Regarding claims 29-32, Curry et al. fail to specifically disclose that the processor and memory are incorporated into a wireless communication device, cellular phone, a personal digital assistant, palmtop computer, and child's toy, respectively. However, Franz et al. teach that the processor and memory are incorporated into a wireless communication device (col. 9, ln. 16), cellular phone (col. 9, ln. 16), a personal digital assistant (col. 9, ln. 16), and palmtop computer (col. 9, ln. 16, PDA is a palmtop computer). The advantage of using the teaching of Franz et al. in Curry et al. is to provide a mean for storing application programs used to process the input speech.

Since Curry et al. and Franz et al. are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary

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skill in the art at the time the invention was made to modify Curry et al. by incorporating the teaching of Franz et al. in order to provide a means for storing application programs used to process the input speech.

27. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Curry et al. (US Patent No. 6493669) in view of Gabai et al. (US Patent No. 6160986).

28. Regarding claim 33, Curry et al. fail to specifically disclose that a processor and memory are incorporated into a child's toy. However, Gabai et al. teach that a processor and memory are incorporated into a child's toy (figures 6 and 7). The advantage of using the teaching of Gabai et al. in Curry et al. is to provide a means for storing application programs used to process the input speech.

Since Curry et al. and Gabai et al. are analogous art because they are from the same field of endeavors, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Curry et al. by incorporating the teaching of Gabai et al. in order to provide a mean for storing application programs used to process the input speech.

Conclusion


THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Huyen Vo whose telephone number is 703-305-8665. The examiner can normally be reached on M-F, 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Doris To can be reached on 703-305-4827. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.


SUSAN MCFADDEN
PRIMARY EXAMINER

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Examiner Huyen X Vo

October 6, 2004
